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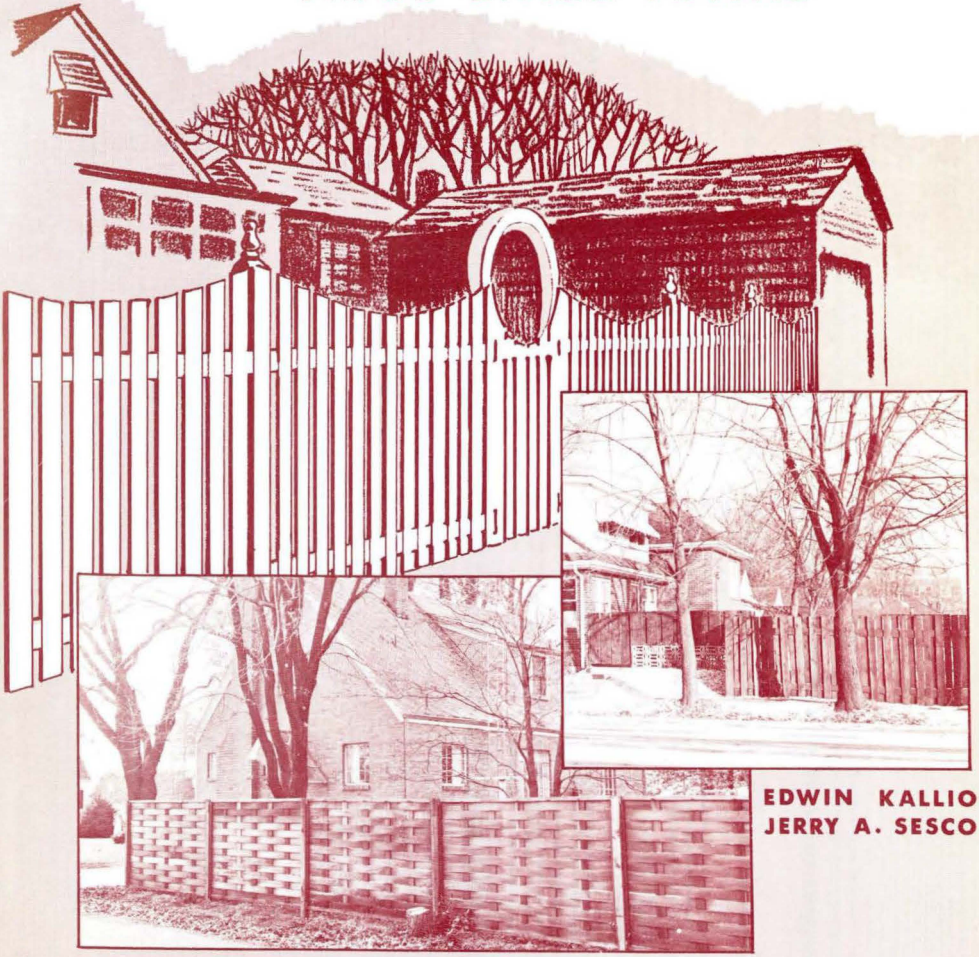
Residential Fencing

in a Metropolitan Area and Three Small Towns



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Residential Fencing in a Metropolitan Area and Three Small Towns

by
Edwin Kallio and Jerry A. Sesco

Introduction

Long-range projections have indicated that about 79 million new dwelling units would be built in the United States during the 40-year period from 1960 to 2000.[1] According to the results of the study reported here, 60 to 75 percent of these home owners ultimately will install some type of fencing. Furthermore, fencing for privacy and security may increase as metropolitan areas expand further into the suburbs and competition for living space increases. These figures suggest a large market for residential fencing during the next several decades.

A survey in 1961 by the trade journal, *Fence Industry Trade News*,[2] showed that the gross dollar sales for the entire fence industry in 1960 was more than three quarters of a billion dollars. At least 20 different types of fences were sold by at least 10 percent of the fence firms. Metropolitan-suburban areas accounted for the largest share of fence sales and most fence firms were located in these areas. Residential fencing accounted for over half the total sales. According to the survey, the fence industry has spent about 25 million dollars annually on plant and equipment expansion.

Residential fencing may be a good potential product for wood-using firms in the North Central States. Although only a few woods such as redwood and cedar are traditionally used for residential fences, other species including certain hardwoods would probably be equally acceptable if they were properly manufactured, treated, and finished.

Lumberyards, too, might increase their fencing sales by offering a wider variety of styles. There are many types of fences that would be attractive and useful to both the less expensive homes and the more elaborate ones.

Since little information has been available on the use of residential fences, this study was made to: (1) determine the types and quantity of residential fences within one metropolitan-suburban area and three villages of different sizes, (2) determine to what extent home value and lot size and location are associated with residential fences, and (3) explore the needs for further marketing research in this product.

Study Methods

Since metropolitan-suburban areas account for the largest share of residential fence sales, most of the data were collected in that type of area: St. Louis County, Missouri, which is composed of the City of St. Louis and its suburbs, was selected as most convenient for study. The total population of this county was 1,453,558 in 1960.

Smaller towns included in the study were Carbondale (1960 population 14,760), Benton (7,023), and Eldorado (3,573) in southern Illinois.

In the St. Louis area, stratified sampling insured representation of lots and homes with different price values. A predetermined number of U.S. Bureau of the Census tracts having similar ranges of home values were

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[1] *U.S. Department of Agriculture. Timber Trends in the United States. Forest Resource Rep. 17, 235 pp. 1965. See page 17.*

[2] *Survey and Analysis. Fence Ind. Trade News 4(3): 14-22. 1961.*

The authors are Market Analyst and Associate Market Analyst, respectively, on the staff of the North Central Forest Experiment Station, Forest Service, U.S. Department of Agriculture. They are headquartered at the Station's field office in Carbondale, Ill., which is maintained in cooperation with Southern Illinois University.

selected at random.[3] The boundaries of each selected tract were then transferred from census tract maps to detailed street maps and a predetermined number of residential lots were chosen, again at random (table 1).

Census tracts of comparatively low-value homes (less than $10,000) were not included in the sample because preliminary observations had shown that many fences in these areas were in extremely poor condition, making it difficult to judge quantities and types of fencing. Census tracts located within the central business district were also eliminated.

Census data were not available to permit separation of the three villages into tracts based on home values. However, each village was divided into nine tracts of about equal area and sampled uniformly to insure an even distribution of home values (table 1).

Data on fence characteristics usually were collected by observation off the lot. Homeowners were contacted only when a closer examination was necessary to determine the construction details and condition of a fence. Age and value of homes and lot sizes were obtained from records maintained by city and county governments.

[3] *U.S. Bureau of the Census. U.S. Censuses of Population and Housing: 1960. Census Tracts. Final Report PHC(1)-131.*

Fence Types

Residental fences were classified as wooden, wire, living, and other.

Wooden Fences

Wooden fences found in the study areas included nine types:

Dressed picket. — This was the most common type of wooden fence in the study area (fig. 1). It was usually made from planed boards ½ to 1 inch thick, 2 to 5 inches wide, and 2 to 5 feet long. Pickets were spaced 2 to 3 inches apart and nailed on two rails between round or square wooden posts set about 6 feet apart. Top designs ranged from

TABLE 1. — *Sample selection of homes in St. Louis County, Missouri (excluding the downtown area), and in three Illinois villages*

Area and median home values[1]	Total number of homes	Number of tracts[2]		Number of sample homes	
		Total	In sample	In each sample tract	In all sample tracts
St. Louis County					
$10,000-14,900	119,846	125	11	10	110
15,000-19,900	63,152	47	10	10	100
20,000-24,900	14,181	11	7	10	70
25,000-29,900	5,623	6	6	10	60
30,000+	8,719	8	7	10	70
Total	211,521	197	41	--	410
Carbondale	4,299	9	9	10	90
Benton	2,532	9	9	8	72
Eldorado	1,340	9	9	5	45
Total	8,171	27	27	--	207

[1] Does not include homes valued at less than $10,000.
[2] U.S. Bureau of the Census tracts were used for St. Louis County. Villages were divided into approximately equal geographic areas.

simple ones with flat squared ends to elaborate ones with sawn scrolls or ornamental posts. Almost all picket fences were painted white.

Wire woven picket. — The wooden pickets of these fences are held in alignment by strands of wire twisted between each picket. Most pickets were ½ inch thick, 1½ inches wide, and 4 feet long, and were spaced 2 inches apart. Usually, they were woven with five 2-strand cables of 12½ gauge wire. This type of fence with square-end pickets is commonly used for snow fencing or corn cribbing. For residential fences the pickets are pointed and can be purchased either painted or unpainted. These fences are usually sold in 50- and 100-foot rolls with pickets 2, 3, or 4 feet long.

Rustic picket. — The rustic pickets are made from round, split, or rough-sawn wood and may be either woven tightly with wire or erected on rails. The wood may be debarked, shaped, or left in natural condition. The tops of the pickets are usually pointed. Cedar and pine were the most commonly used woods for this type of fence in the study areas. The fence is available in prefabricated panels 6 and 8 feet long with pickets 4 to 8 feet long.

Board. — For this type of fence boards are placed in a solid arrangement either horizontally between squared posts or vertically on a 2x4-inch rail frame. The favored height in the study area was 6 feet with 6x6-inch or 4x4-inch posts set 6 to 8 feet apart.

Louvre. — Louvred fences are made with boards positioned vertically or horizontally at a desirable angle and nailed at the ends to framing members. They may be built at the site with dimension lumber or purchased as prefabricated panels. This type of fence is often included in the architect's plans of the home.

Board-on-board. — For this fence, boards are nailed to a frame spaced slightly narrower than the board width. Another row of boards is nailed to the other side, with the open spaces opposite the boards on the first side. Both sides look exactly the same. As in the louvred fence, the boards may be placed either horizontally or vertically (fig. 2).

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FIGURE 1. — The dressed picket was the most common wooden fence type in the study area. Note the scalloped effect created by varying the picket lengths.

F-516467

FIGURE 2. — The board-on-board fence in the foreground was made from hardwood lumber.

Basket weave. — For this fence, lumber ½ to 1 inch thick is woven between posts and spacers placed at uniform intervals. In the study area the boards usually were 4 to 8 inches wide and 4 to 6 feet high. The fence is made in prefabricated panels by several fence manufacturing firms (fig. 3).

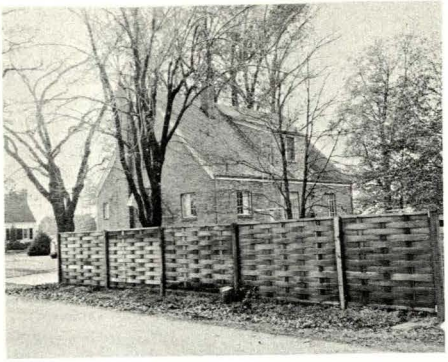

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FIGURE 3. — This basket weave fence is made from prefabricated panels.

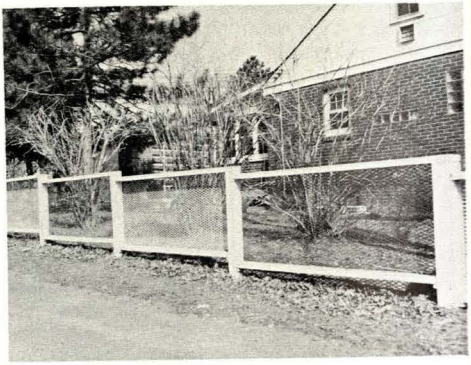

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FIGURE 4. — Wire fences are often fastened on wooden frames.

Lattice. — The lattice fence is made from lumber or wood strips placed an equal distance apart with superimposed strips at right angles. It was usually used in the study areas to support plants.

Rail. — This fence is usually made from split rails, sawn timbers, or boards spaced evenly between posts. Posts may be mortised to take rail tenons, double posts may be used to facilitate rails, or boards may be nailed to the posts.

Wire Fences

In the study area a common type of wire fence was wire mesh fastened on a wooden frame (fig. 4). These fences were usually 4 to 5 feet high, with either round or squared posts spaced 5 to 8 feet apart. The chain link fence with or without interwoven pickets was also frequently seen. When woven pickets were used, the fence was installed on either wooden or steel posts; without the pickets, steel posts were nearly always used.

Living Fences

All hedges or continuous arrangements of woody plants serving to define boundaries or to provide privacy or security were classified as living fences.

Other Types

Other fences found in the study areas were made from ornamental iron and masonry products such as bricks, concrete blocks, and stones.

Quantity of Fencing

About 75 percent of the homes studied in the St. Louis area and about 60 percent of the homes in the smaller villages of Carbondale, Eldorado, and Benton, Illinois, had some type of fencing.

The average number of lineal feet of fence per home in St. Louis (including homes without fences) was 96.1; homes in the smaller towns had slightly more — 101.4 feet. More wire fencing was used in both study areas than any other type: Homes in St. Louis had an average of 51.9 lineal feet and homes in the villages had 52.3 feet. More wooden fencing was used by village homes than by St. Louis homes — 30.6 lineal feet compared to 19.0 feet (fig. 5). Also more wood was used in the average fence in small towns than in St. Louis — 119.5 board feet compared to 73.0. A part of this was attributed to a greater volume of wood used for framing in erecting the wire fencing by the small town homeowners.

In St. Louis more than 30 million lineal feet — almost 6,000 miles — of all types of fencing was found on residential lots. The volume of wood materials used in building these fences exceeded 20 million board feet; three-fourths of it was in wooden fencing, one-fourth in posts or frames for wire fencing.

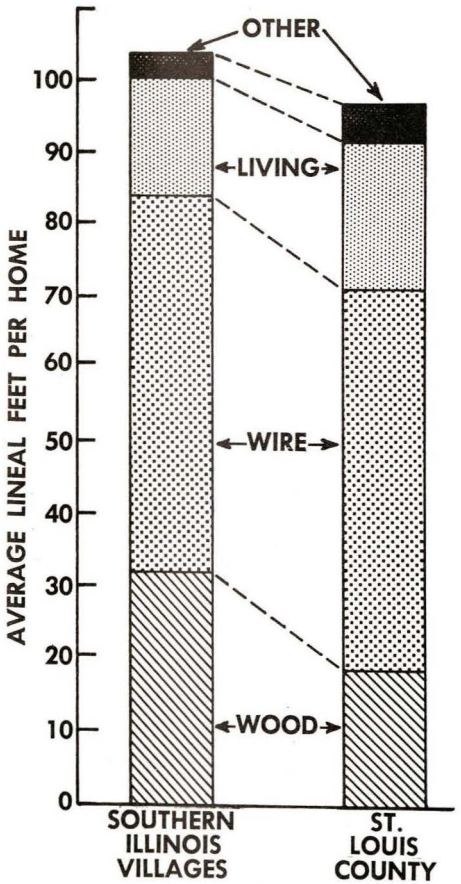

FIGURE 5. — Average lineal feet of fences by fence class in three villages and St. Louis County, Missouri, 1964.

Construction and Condition

Almost all wooden fencing was constructed on the site. Prefabricated panels or sections were used in less than 10 percent of the fences, mostly rustic picket, louvre, and basket-weave types.

About 38 percent of the wooden fences were in excellent or near perfect condition; 36 percent were in good condition, needing some refinishing but no repair; 22 percent were in fair condition, needing both repair and refinishing; and only 4 percent were in poor condition or beyond repair (fig. 6).

Fences less than 5 years old and those on lots with high-value homes were usually in good or excellent condition. The condition of fences older than 5 years ranged from good to poor; and fences on lots with the lowest value homes generally were in the poorest condition.

Almost three-fourths of the wooden fences were made from surfaced lumber and were usually painted. Fences made from rough sawn materials such as rustic pickets usually were left unfinished or were stained.

Nearly all (97 percent) of the wooden fences and about one-third of the wire fences were fastened on round or squared wooden posts.

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FIGURE 6. — Only a small percentage of the fences observed in the study areas were beyond repair.

Purpose of Fencing

The purpose of each fence within the study area could not always be determined. Many fences, such as the lattice fences used to support plants, had only one purpose. Others had several — for example rustic picket fences were often used for privacy, security, and boundary definition. Based on their location and type, the most apparent purposes of the fences were judged as follows:

Primary purpose	*Percent of fences*
Privacy	11
Security	37
Decorative, planting, landscape	29
Boundary definition	22
Other	1

Relationship of Fences to Home and Lot Characteristics

Data on the relationships of the various fence classes to home and lot characteristics were collected in St. Louis. In general, the homes in the higher value classes had more wood fencing and less wire fencing than homes in the lower value classes (fig. 7). Those with the large lots and those on corner lots had more wood fencing and less wire fencing than other homes (fig. 8). Homes older than 5 years had considerably more fencing of all types than did the newer homes. There was not much difference in the amounts and classes of fences associated with homes 5 to 10 years old and homes over 10 years old (fig. 9).

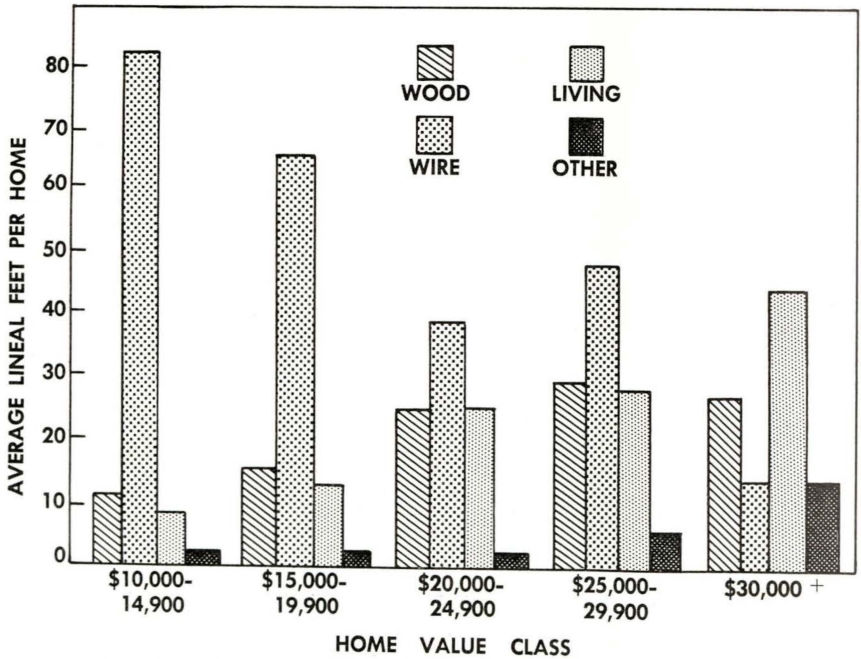

FIGURE 7. — Average lineal feet of fencing by class of fence and home value class. St. Louis County (including St. Louis City but excluding the downtown area), 1964.

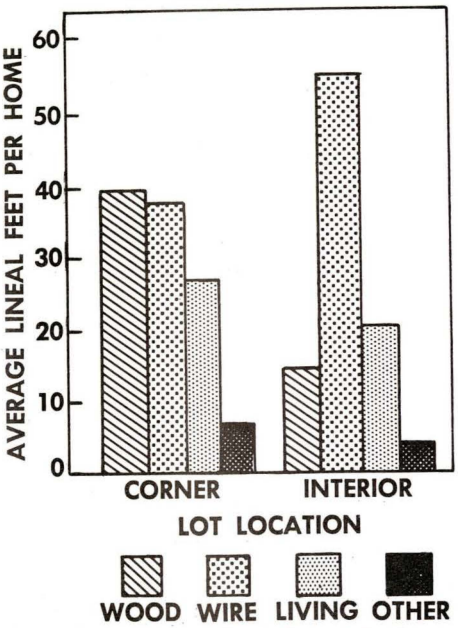

FIGURE 8. — Average lineal feet of fencing by fence class and lot location. St. Louis County, 1964.

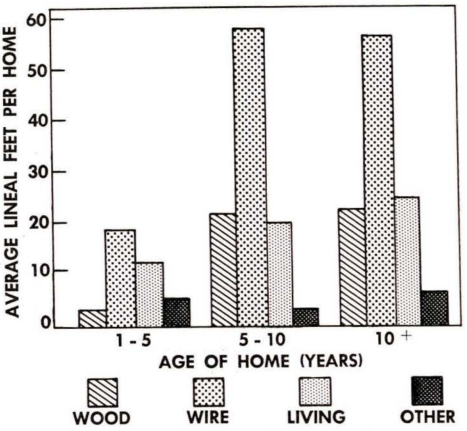

FIGURE 9. — Average lineal feet of fencing by fence class and age of home. St. Louis County, 1964.

Summary and Discussion

Many different types of fences were found on residential lots in the metropolitan-suburban area of St. Louis County, Missouri, and small towns in southern Illinois. Wire fences were the predominant type used in both study areas. More wooden fences were found on village lots than on city lots. St. Louis had 6,000 miles of fencing; and the lumber used to build the wooden and wire fences amounted to more than 20 million board feet.

Most of the wooden fences were made from surfaced lumber and most were in good or excellent condition. Wooden posts were used with almost all wooden fences and one-third of the wire fences. The fences served many purposes, but the major one seemed to be security (37 percent).

In general, the more expensive homes, those on large lots and those on corner lots, had greater amounts of wooden fencing. Homes over 5 years old had more fencing of all types than did the newer homes; and homes on corner lots had more wooden fences than homes on interior lots.

Study results have some important marketing implications. First, the overall market for residential fencing and fence materials is large. Assuming that the average life of a residential fence is 15 years and that study findings can be applied to other areas, about 400 million lineal feet of all types of fencing are built in the United States each year, and about 300 million board feet of wood materials are used to build these fences.

Second, certain factors, such as housing value, lot location, and years of ownership, appear to be indicators of type and amount of fencing used. Existence of such possible relationships suggests that wood fence manufacturers, wood material suppliers, and fence dealers might be able to delineate potential fence market areas by examining census tract data, construction statistics, and municipal records.

Finally, if reliable forecasts of consumer behavior in this product market are to be made, we need to go beyond purely statistical predictions: We need to know much more about *how* people's market behavior is motivated and *how* buying decisions are made. Certain economic, social, and psychological factors underlying marketing decisions to purchase residential fencing will be considered in a later study.

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Joint Proceedings, Second Genetics Workshop of the Society of American Foresters and the Seventh Lake States Forest Tree Improvement Conference, October 21-23, 1965, by North Central Forest Experiment Station, U.S. Forest Serv. Res. Pap. NC-6, 110 pp., illus. 1966.

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